

A LEVEL BIOLOGY, OCR A2 5-DAY FIELDWORK ITINERARY

Day	Habitat Location
Monday AM	Welcome, Falstone
Monday PM	Falstone, Kielder Castle
Tuesday AM	Deciduous woodland
Tuesday PM	Bakethin, salmon hatchery
Wednesday AM	Sidwood freshwater
Wednesday PM	Sidwood squirrels
Thursday AM	Coniferous woodland
Thursday PM	Investigation/activity
Friday AM	Sand dune succession
Friday PM	Rocky shore investigation

Monday - Falstone Moss

Visit to Falstone Moss nature reserve - one of the original border mires, south end of Kielder.

- vegetation/abiotic sampling and data collection to understand moorland/mire ecology and succession,
- depth/core sampling for climate reconstruction,
- learn about it's protected status and subsequent management.

Visit to Kielder Castle

- various displays including osprey display and short video on forest management.
- live video link for red squirrels.

Evening talk:

- Review the moorland/mire ecology the role of bog research in conservation.
- Introduction to following day - woodland types and the concept of diversity.
- How to do a kite diagram

Suggested evening work (supervised by accompanying teachers)

- Kite diagrams of moorland/mire data and conclusions based on this

Tuesday - Deciduous woodland

Visit to 'The Riding', ancient oak woodland for:

- vegetation/abiotic sampling – data for diversity comparisons,
- management for conservation by Northumberland National Park.
- **Bakethin reserve** – walk to hide, bird species, creation and management of reserve.

Evening talk:

- The calculation of diversity using Simpson's index (this is covered at AS with OCR, so should be a reminder!)
- Introduction to following day – freshwater and squirrels

Suggested evening work (supervised by accompanying teachers)

- Calculation of diversity from deciduous woodland data
- Completion of questions within workbooks

Wednesday - Sidwood

Visit to Sidwood, one of the oldest Kielder plantations for:

- AM - freshwater invertebrate sampling - biotic indices.
- PM - introduction to squirrels – feeders/hairtubes/cameras/dreys. Cone transect to estimate population density.

Visit to Salmon hatchery centre – management of salmon population and fresh water mussels.

Evening talk:

- How to calculate squirrel population density from cone transect data.
- How to calculate the biotic index for the freshwater site
- Introduction to following day – coniferous woodland (plus the other chosen activity)

Suggested evening work (supervised by accompanying teachers)

- Calculation of squirrel population size
- Biotic index of the river
- Completion of questions within workbooks

Thursday - Coniferous

Visit deeper into Kielder forest for:

- Comparative cone transect of red squirrels. Talk from Red Squirrels Northern England.
- Vegetation/abiotic sampling – for diversity comparison with deciduous.
- History and management of Kielder forest
- These activities could be compressed in time to also fit in either:
 - A2 Task 1 – An investigation into the distribution of photosynthetic organisms in relation to an abiotic factor
 - An activity at Hawkthirst such as canoeing/drascombe boats/climbing etc
 - Drive up to ‘skyscape’ art installation near the observatory for view over Kielder to appreciate the size of the forest for timber management.
 - If timing fits a visit to an active forestry site to observe the felling and extraction in process

Evening talk:

- Introduction to following day – sand dune succession and rocky shore
- Introduction to coursework activity (if chosen to do this on the fieldtrip)

Suggested evening work (supervised by accompanying teachers)

- Calculation of comparative squirrel population size
- Calculation of comparative woodland diversity
- Completion of questions within workbooks

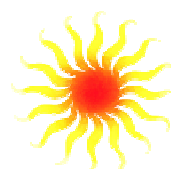
Friday – Coastal dunes and rocky shore

A visit to the Northumberland coast for:

- Sand dune profile and vegetation transect, biotic/abiotic measurements and discussion of the dune system as an example of succession.
- Management talk from the National Trust, if available.
- Rocky shore for A2 Task 3 – The effect of changing water conditions on the size of a named organism.

Habitat workbooks will be provided for students with data collection, processing and comprehension questions/activities designed to address the syllabus statements above.

Potential visits and talks such as the forestry, National Trust, Red Squirrels can be arranged but are dependant on the availability of these organisations.



Module 3: Ecosystems and Sustainability

5.3.1 Ecosystems

Ecosystems are dynamic entities tending towards some form of climax community.

Discussed and described in the explanations of management of the various habitats.

(i) describe one example of primary succession resulting in a climax community;

Formation of a mire from the last glacial period

Formation of dune systems

(j) describe how the distribution and abundance of organisms can be measured, using line transects, belt transects, quadrats and point quadrats (HSW3);

Data collected from a range of locations to be used in statistical tests, emphasis on random sampling. All different sampling methods used and/or demonstrated. Other surveying techniques also discussed and used.

5.3.2 Populations and Sustainability

For economic, social and ethical reasons ecosystems may need to be carefully managed.

Management of all reserves/habitats visited discussed including the role of the bodies involved: Forestry Commission, National Park, Wildlife Trust, Red Squirrels Northern England, National Trust and Northumberland County Council.

Explanation of different status of habitats and the protection this brings

To support an increasing human population, we must try to use biological resources in a sustainable way.

Conflict of timber demands and farming over habitat conservation highlighted.

(e) distinguish between the terms *conservation* and *preservation* (HSW6a, 6b);

Highlighted in many of the visits and discussed in relation to the various habitats.

Specific species and their management are considered – red

squirrel/osprey/freshwater mussel/hen harrier.

(f) explain how the management of an ecosystem can provide resources in a sustainable way, with reference to timber production in a temperate country;

Ideal for this fieldtrip as being based in the Kielder area will have specific discussion of forest management. Including the changing approach of the Forestry Commission over the last few decades to manage the forest in a much more sustainable way.

(g) explain that conservation is a dynamic process involving management and reclamation;

Each habitat is managed in a different way with various techniques and levels of intervention. This will be explained and discussed with on-site talks and notes in the habitat workbooks provided.

(h) discuss the economic, social and ethical reasons for conservation of biological resources (HSW6b, 7c);

The different emphasis of the management of all the habitats will be discussed with the roles of the different bodies. Areas of conflict and demand are also discussed with in-context examples. e.g. grazed/ungrazed woodland, red squirrel/timber production, hen harriers/grouse shooting.

Practical Skills (HSW5) are assessed using specific OCR-set experiments. The practical

work outlined below may be carried out as part of skill development.

Collection of quantitative data:

- Measure the effect of a changing abiotic factor on the distribution and/or abundance of an organism.

Biotic and abiotic measured in deciduous/coniferous/mire/dune examples of organisms given throughout, e.g. sundew on mire/marram grass on dunes.

Presentation, analysis and evaluation of quantitative data:

Each day's fieldwork data will be presented and analysed in a variety of ways:

Simpsons diversity index for analysis of diversity in woodland types

Biotic indices for freshwater organisms

Cone transect data to estimate squirrel population density

Although not on the spec there is an opportunity for further statistical work to illustrate trends, for example correlation analysis of biotic/abiotic.

- Plot kite diagrams.

Using data showing the transition of moorland to mire

Evaluation of data collection strategies:

Discussed throughout but highlighted particularly with the red squirrel surveying methodology